PHENIX results for J/ ψ transverse momentum and rapidity dependence in Au+Au and Cu+Cu collisions

A. Glenn^a for the PHENIX Collaboration

^aDepartment of Physics, University of Colorado, Boulder Boulder, CO, 80309, USA, aglenn@colorado.edu

Heavy quarkonia production is considered to be one of the most important probes of the hot and dense state created in relativistic heavy ion collisions. At RHIC energy J/ψ yields, including the contributions from χ_c and ψ' states, are expected to be suppressed in a quark gluon plasma due to color screening and gluon rescattering. Competing processes such as quark recombination may also play an important role. Detailed models with different production and suppression contributions may generate similar centrality trends while presenting distinctions in rapidity and/or transverse momentum distributions. For example, J/ψ recombination from thermalized quarks could be particularly evident in transverse momentum modifications. The PHENIX experiment at RHIC has measured J/ψ production in $\sqrt{s_{NN}}=200~{\rm GeV}~Au+Au$ and Cu+Cu collisions at forward (1.2<|y|<2.2) and mid (|y|<0.35) rapidities. The most recent results for the rapidity and transverse momentum dependence of J/ψ production will be discussed and compared with PHENIX baseline p+p and d+Au measurements and various theoretical calculations.